

The Groton Bridge and Mfg. Co., Groton, N. Y.

TO THE PUBLIC

The Groton Bridge and Manufacturing Co.,

who have succeeded to the business of the GROTON IRON BRIDGE CO., C. PERRIGO & CO., and PERRIGO & AVERY, to their patrons and the public give a cordial greeting, and present their ANNUAL CATALOGUE OF MACHINERY AND BRIDGES. With the advantages of increased capital, and the addition of energetic agents, we hope, during the coming season, to make our presence felt in "pastures new," and at the same time strengthen our position where we are now favorably known.

The continued success of our NEW MODEL SEPARATOR speaks with no uncertain sound, and has established it on a firm foundation.

Our PORTABLE and TRACTION ENGINES at every fair, where exhibited, have taken the front rank, and are conceded to be the best in the market.

Our FRENCH BUHR STONE FEED MILL is too well known to require a word of commendation.

In all our manufactures we shall, as in the past, use every effort to please our customers, and shall combine skilful workmanship with the very best material, and shall always stand ready to adopt such improvements as shall be demonstrated to us by the light of experience.

Our celebrated WROUGHT-IRON BRIDGES are now recognized by the United States Government as the best in the country, as to style, finish, and strength; and we are prepared to furnish estimates for any sized bridge on short notice.

We cordially invite all persons who are in want of any goods of our manufacture to correspond with us or visit us at our works.

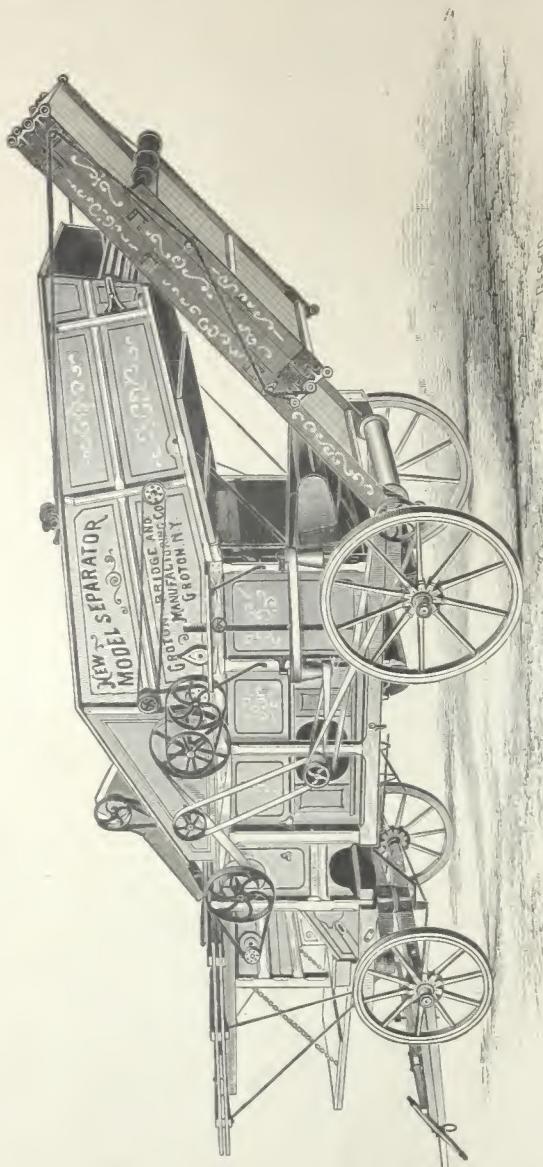
Yours respectfully,

GROTON BRIDGE AND MANUFACTURING CO.,

GROTON, TOMPKINS CO., N. Y.



The Groton Bridge and Mfg. Co., Groton, N. Y.



NEW MODEL SEPARATOR.

The Groton Bridge and Mfg. Co., Groton, N. Y.

The New Model Separator

IMPROVED AND PERFECTED.

WE ARE prepared, this season, to present to our Patrons the only Machine that will successfully Thresh, Clean, and *Save* all kinds of Grain and Seeds, such as Wheat, Barley, Oats, Rye, Buckwheat, Flax, Timothy, Peas, etc., etc.

The most economical and easily operated machine now manufactured.

We also claim excellence in workmanship, simplicity, durability, valuable improvements, convenience of feeding and management, lightness of draft, and beautiful finish, which points are always appreciated by the purchaser.

The New Model was built as long ago as 1848, and, like most other machines, has been improved from time to time, while adhering carefully to the general principles which, from its earliest conception, has made the NEW MODEL a success.

The experience of the past few years has been a realization of the most sanguine hopes of the projectors of this enterprise and justifies their confidence.

The NEW MODEL is an Apron or Grain Belt Machine, which is better adapted to all kinds of grain and seeds than any Vibrator ever built.



The Cylinder.

We find by practical experience that cylinders in many machines are too long, and cannot be kept full while threshing. To do good work the cylinder must be kept as nearly full as possible. If you will notice the long cylinder when it comes to be re-spiked you will see that the spikes are all worn out in the center of the cylinder, while at either end they are not half worn. The reason is, your work is mostly done in the center of your long cylinder.

Our Cylinder is made with solid heads, which prevents throwing dust back into the feeder's face, and adds greatly to its strength. They are nicely balanced and run in the best of Babbitt metal cases.

The Cylinder Spikes are very heavy, and made with a taper shank, which extends clear through the bar, thus giving the whole strength of the tooth, and having no shoulder, when you tighten the burr, the tooth becomes perfectly solid and not liable to get loose.

The Concave.

The Concaves are so arranged that they can be raised or lowered by means of a lever while the machine is in motion, and the concave teeth brought within the desired distance of the cylinder spikes. By this method the man in charge can operate the machine as the work may require, raising or lowering both ends of the concave at the same time. This point is worthy of consideration to any thresher who desires a machine with the latest improvements.

Our concaves are in sections, so that one or more can be removed at any time. The Concave Beds are made of cast-iron and are far superior to any now in the market. We can beard barley that many other machines cannot, owing to the construction of the Concave Bed.

The Grain Belt

is arranged so that it can be tightened or loosened by turning two set screws



at the lower end. The apron is made of the very best cotton duck. As the apron runs upward a gentle vibration is given to it, which helps to separate the light grain from the chaff.

The Rattle Belt.

As the straw is carried over the picker it is delivered on the rattle belt, and there the separation is complete as the rattle belt is nine feet long, and with the agitator motion all grain must sift through the straw and rake to the sieves. The rattle rake can be run either loose or tight, as it has adjustable bearings.

The Beaters.

The manufacturers put two beaters in all machines, which run above the grain belt. The first beater is placed close to the cylinder which prevents the cylinder from throwing the grain and straw.

The objects of this beater are two-fold: First—To take the straw direct from the cylinder as fast as it passes through or under the same, thus avoiding all danger of winding around the cylinder, no matter how wet or tough the grain may be. Second—to check the flying grain which is thrown from the cylinder, and to force it down on the grain belt, where it is carried back to the fan and shoe.

The second beater answers as a beater and picker to loosen the straw and separate the grain therefrom, as the straw is caught by it as it leaves the first beater and is carried forward toward the rake.

Grain Curtain.

Immediately back of the second beater is placed a heavy grain curtain which completes the work of checking all flying grain that may have passed under the beater.

Dust Board.

A Dust Board is placed just back of the cylinder which prevents all dust from being thrown in the feeder's face.

The Flanning Mill

is large, and by a device of our own the arms which support the fans are placed in the middle of the shaft, thus the air has free passage to the very center of the mill, and, in securing even a very strong blast, such a high motion is not required as in the ordinary mill.

The Fan runs direct from the cylinder, and is, therefore, in perfect harmony with it, that is when the cylinder runs fast in threshing the fan runs fast, and when the speed of the cylinder is decreased the fan runs proportionately slow.

By means of two shifting wind boards, the blast is directed to any part of the sieve, and the grain and chaff allowed to light on such portion of the sieve as the operator desires.

The Elevator

is made by fastening wooden blocks on a belt which runs over pulleys at each end, the blocks drawing the tailings up on the bottom of the elevator box in which there is no partition, giving ample space to prevent clogging.

The Conveyor.

The Grain Worm, or Conveyor, is so arranged that the grain can be delivered into the basket from either side of the machine, thus making it very convenient and many times saving one man's labor.

The Sieves.

The separating surface is fifteen inches wider than the cylinder is long, which allows the use of large sieves, and gives very large separating and

The Groton Bridge and Mfg. Co., Groton, N. Y.

cleaning surface, which is one of the reasons why the New Model does such thorough work.

The Cone Pulleys.

We put on all our machines a set of Cone Pulleys, by which the shake, or motion of the mill is varied at the pleasure of the operator without any change of the speed of the cylinder. Wherever they are used they give full satisfaction.

The Stackers.

Our Folding Stackers are easily handled by means of rope and windlass. They are made in three sections, connected by malleable iron joints. These joints are strong, so that there is no possibility of their sagging out of shape. The Stacker is so arranged that the middle section can be removed, making a short carrier. The first section has a Chaffer, by means of which the chaff can be separated from the straw with very little trouble. This Stacker can be adjusted to suit the elevation of the stack, by means of the windlass, without danger or loss of time.

The Feed Table

is large, which is a point highly appreciated by all practical threshers, as there is room for two men to stand and feed at the same time.

The Folding Tables

are another very convenient feature of the NEW MODEL, as it does away to a great extent, with the old way of scaffolding.

The Frame

is constructed of the very best, thoroughly seasoned material, and in such a manner that it is light and strong.

Arched Sills.

The NEW MODEL is built with Arched Sills which makes it very handy in turning around in cramped places, or in going in or out of narrow and crooked driveways, through gates, etc.

The Tight Floor

is put in all our machines, which keeps all litter from falling through on the floor, and all the dirt goes out upon the stack, and you can change from one kind of grain to another without stopping to sweep the floor, thereby making a great saving of time and labor, which is an object to both thresher and farmer.

Running Gear.

As will be seen by the foregoing cut, the NEW MODEL is mounted on a good truck or wagon. The utmost care is taken in selecting the material of which we build the wheels and axles. The wheels are forty and forty-four inches in diameter, with $2\frac{1}{2}$ inch tire, cast-iron hub, and the spokes and rims of the best quality of oak. The axles are each provided with our patent double truss-rod attachment, which consists of round rods of the best iron, secured by nuts to the axle arms on either side, and crossing under the axle at the same point, thus making one of the best and strongest wagons put under any machine.

We make two sizes of Separators, one with a thirty inch Cylinder and forty-two inch separation; the other with a thirty-three inch Cylinder and forty-eight inch separation. The operations of these machines are exactly alike; but the smaller one is particularly adapted to hilly or mountainous regions, and where obs are small.

Our machines are Belt Machines, with large pulleys, all nicely finished up for service, and look well on the machine. They are all made with good width of face, which prevents the belts from running off.

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We are prepared to furnish any number of flattering testimonials from all parts of the country where the NEW MODEL has met with marked success, and everyone speaks in its favor, both in the Home Market and in the Western States, where it is now extensively used.

Our Warranty

is complete and is all that can be claimed. All machines are warranted to be built of the best material, and capable of accomplishing all they are recommended to do. If, on starting a machine, it should, from any cause, prove troublesome, the cause should be sought, and, if not found, prompt notice given to the Agent or Home Office, when a competent person will be sent to correct the difficulty.

The woodwork of our machines is thoroughly seasoned, and many times when exposed to damp weather some part becomes swollen and may bother if not properly managed, which should be carefully looked after.

Keeping the machine during the threshing season, whether in use or not, shall be deemed conclusive evidence that it has complied with the terms of warranty.

The Groton Portable Engine

is superior to all others for power and economy of fuel and water, and merits the attention of all in need of this kind of machinery.

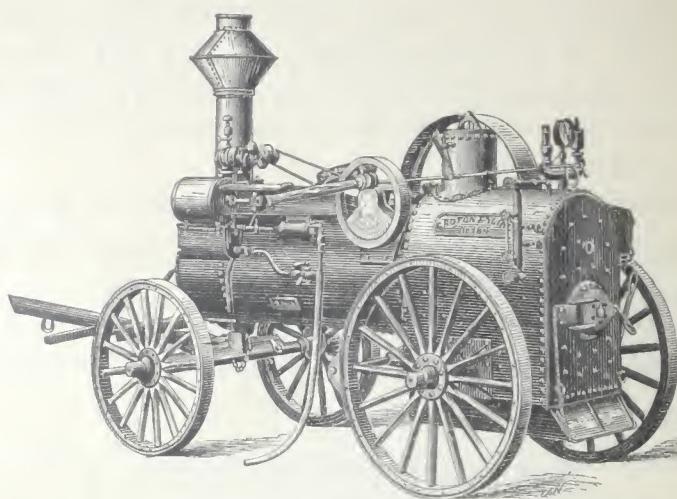
The Boiler

has a shell of twenty-six inches diameter, and seventy-five inches in length.

It is made of C. H. No. 1 shell iron, $\frac{3}{4}$ inch thick, and of one sheet, having only one lateral seam which is double riveted. The fire-box is thirty-five inches long, twenty-three inches wide, and twenty-nine inches high, made of the best flange fire box steel; the crown sheet is put in crowning, and it also slopes backward, which makes it much stronger to withstand strains, and, in case of low



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PORTRABLE ENGINE.

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water, would be less liable to become damaged, as but little surface would be exposed. The crown sheet and all flat surfaces are thoroughly stayed with $\frac{3}{4}$ inch stay bolts. In the crown sheet is placed a safety, or fusible plug; in case of low water this will melt and the escaping steam and water will put out the fire. We put forty two-inch best quality lap-welded flues in all of our boilers, each five feet long; the flues are set in rows, one above the other, the space between the same growing gradually wider in each row, as they approach the top. This is a desirable feature, as it gives ample room for the globules of steam to come to the surface without carrying the water with it; this feature is also carried out in construction of the water leg surrounding the fire-box. The water space is considerable wider at the top than at the bottom; this principle is our own, and is the reason why our boilers are so free from foaming and make such dry steam with so little fuel and water. The wagon top is raised six inches above the shell or waste of the boiler, which gives us a water and steam space of fourteen inches over the crown sheet. We use brass screw plugs for all clean cut holes on our boilers. The grates are in sections, and are made to shake or dump at will.

The Engine

has a cylinder 7 x 9 inches stroke. The cylinder, cylinder head, steam chest, guides, bracket, and main bearings are cast together, and are thereby much less liable to get out of line. The valve seat is adjustable, and should it become worn, can be taken out, refitted and put back, or replaced with a new one, at a trifling expense.

The crank is nicely balanced, so that the engine when running requires no blocking.

We make two sizes of band wheel, one thirty-eight inches and the other forty inches in diameter—each having a nine inch face, which faces are turned on a true circle, and with such, the necessity of being so particular in setting is avoided.



The cross-head, cross-head pin, piston-rod, connecting-rod, crank-pin, and main-shaft, are made of cast steel. The slides on the cross-head are made of gun metal, and are as long as the stroke of the engine, and can be adjusted to take up the wear without any danger of getting them out of line. The connecting-rod boxes are made of gun metal, and the wear may be adjusted by a wedge and bolt.

The crank and wrist-pins are extra long and large and fitted with self-oiling cups. The piston is fitted with self-packing rings, and requires no setting out to compensate for wear. All the stuffing-boxes and glands are made of gun metal, and are easily adjusted with a wrench. The throttle-valve is attached to a long rod running the length of the boiler for starting the engine; the cylinder-cocks are also attached to this rod, and are opened and shut by turning the rod, and, by pushing and pulling the rod endways, starts and stops the engine.

The Portable Engine is mounted very low down on large and strong wooden wheels, with wide tires; the axles are of the best wrought-iron, and have the set and gather turned in them when made, insuring all to be uniform and easy running. The fifth wheel is a ball-and-socket joint.

Each engine has a strong and reliable brake, a spring seat, a reliable governor that will vary the speed forty per cent, a pop safety-valve, steam-gauge, whistle, gauge-cocks, extra water-glass, suction-hose, pipe combination engineer's wrench, malleable iron wrenches, flue-scaper, cylinder lubricator, oil-can, poker, whiffletree and neck-yoke.

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THE GROTON TRACTION ENGINE

MANUFACTURED BY THE

Groton Bridge and Manufacturing Co.,

and clearly represented on the following pages, shows that the Artist and Engraver have done their work admirably, as the views are perfect. Every part of the machine is accurately delineated, and the two views will give the observer as correct an idea of the appearance, and as correct an understanding of the construction of the machine, as he could derive from a personal inspection. The views were made large, in order that a correct impression might be conveyed.

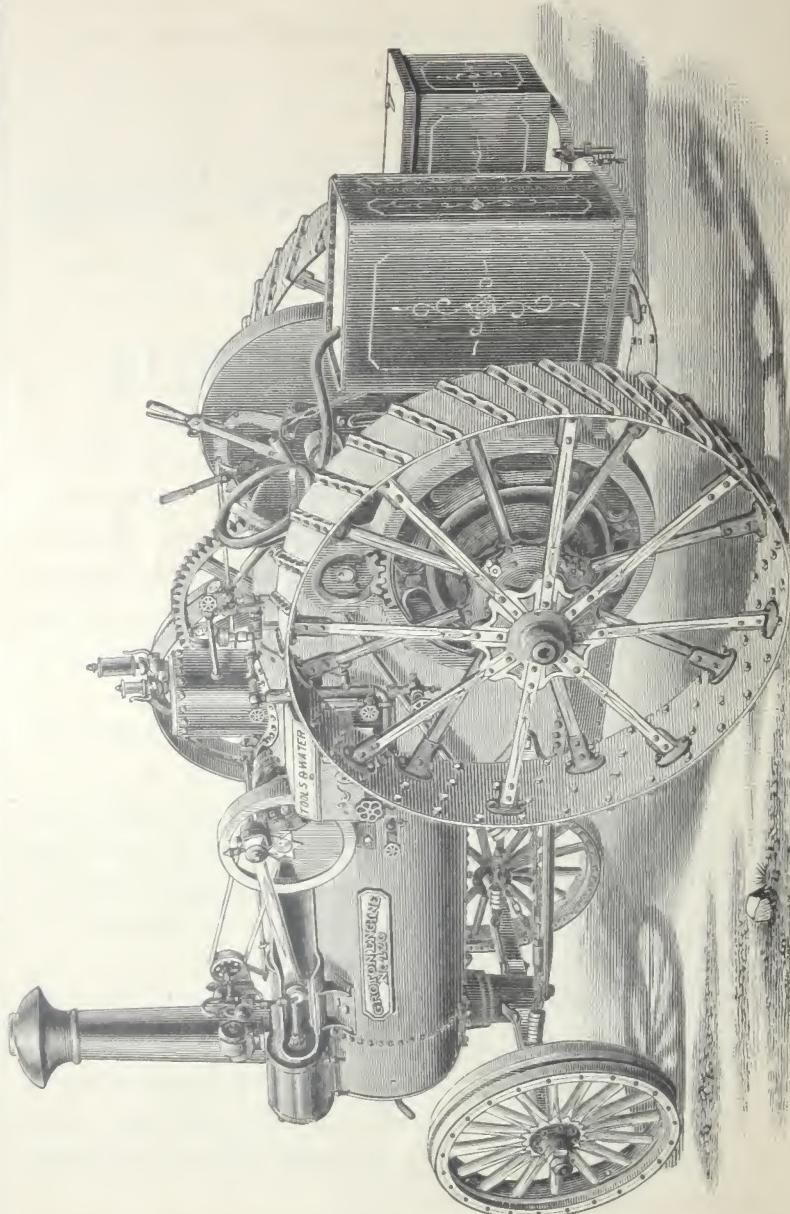
The main characteristics of the Machine can be taken in at a glance, and yet the cuts will repay careful inspection.

The GROTON TRACTION ENGINE, of course, bears a strong resemblance to other Traction Engines in many respects, yet it has a number of distinctive features, which belong exclusively to this engine. These special features are fully described in the succeeding pages, and to them the attention of the reader is respectfully referred. The descriptions should be carefully read, because they were prepared on the theory that the purchaser of a machine so costly as a Traction Engine, should know all about it.

We claim a number of points in which the GROTON TRACTION ENGINE is superior to any other engine of the kind built. We know that it is the most substantial and strongest engine in the market—that it is easily operated, the most economical, and the most reliable.

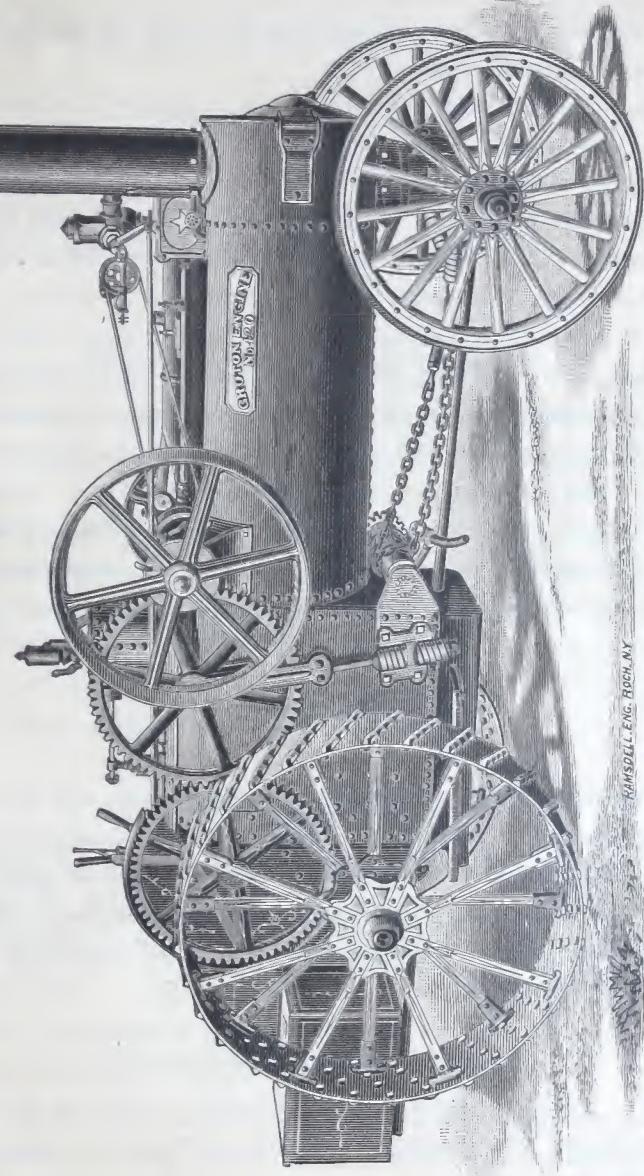
The Groton Bridge and Mfg. Co., Groton, N. Y.

GROTON TRACTION ENGINE.



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GROTON TRACTION ENGINE.

The Groton Bridge and Mfg. Co., Groton, N.Y.



GROTON TRACTION ENGINE.

RAMSDELL, ENG. ROCHESTER.

It embodies all the latest improvements and has all the conveniences which belong to a first-class engine.

One of the most difficult problems which our modern mechanics and engineers have to contend with, and overcome, has been to build an engine capable of developing strong power at low fuel cost, and furnish its own motive power to go where its services are required. The first experiments in this line were so crude as to ruin their inventors. These experiments, however, were danger signals, and guides to those who followed. Bad roads had to be traveled, as well as meadows and plowed land. Hills had to be climbed, and, like the King of France, the operators had to come down again. All these difficulties, not to mention the thousand-and-one troubles of getting a machine which shall *think* enough to be as steady as a stationary engine when at rest, and limber as a horse when in motion.

We cannot speak of the future, for this is an age of mechanical miracles but to this time, the GROTON BRIDGE AND MANUFACTURING CO. have come the nearest to perfection, in the accomplishment of this apparent impossibility.

The Boiler

is of the same style and proportions as the Plain Engine, with the exception of the brackets, etc., which are necessary to which to attach the Traction Gearing, and our patent device placed inside the boiler to *keep the crown sheet covered* when descending heavy grades. This feature is new, and is important to any traction boiler, as all other boilers of this style leave the crown sheet exposed to the fire when going down hill.

We overcome this by a clever arrangement of the Dry-pipe, swelling it out just in the right place to take the room above the ordinary water level forward. And then this same awkward water, in going up hill, would fill the engine and kill the steam, and we overcome this by an equally ingenious arrangement.

The Groton Bridge and Mfg. Co., Groton, N. Y.

In the crown sheet of every one of our Boilers will be found a

Fusible Metal Plug

which ensures safety in case of low water from any cause, therefore, before any danger can arise, this metal plug will melt and allow the steam and water to rush in and extinguish the fire before any harm can be done to the fire-box.

The Driving or Road Wheels

are sixty inches in diameter, with twelve inch face, and are made principally of steel, wrought and malleable iron. The lugs, or traction pieces, are of peculiar shape, best adapted to adhere to the ground, and are held in place by nuts, and, in case of wear, can be renewed at a trifling expense, without throwing away the whole wheel. By this construction of a wheel we secure lightness, elasticity, durability, and strength, with a minimum of weight; and, with the large and broad tires, it is only in very extreme cases that we are obliged to resort to locking the drive wheels, or putting on extra lugs to climb the steepest grades, or to get out of the worst ruts.

The Driving Device.

We use nothing but spur gearing in our driving device. All gears have broad faces and strong teeth, and are completely encased to protect them from sand and dirt, and precludes all liability of injury to the person running the engine. Our

Patent Spring Attachment

to the intermediate gear, which relieves the train of gearing from sudden shocks, breaks, etc., caused by the drive wheels running over obstructions, is a very desirable attachment to any traction engine.

The Steering Device

is placed on the left-hand side of the engine, in a handy position for the engineer.

The Engineer's Platform

is of a size sufficient to accommodate two persons at a time, besides space enough to put on the regular sized water tank and coal box, which always go with our Traction Engines, if desired.

The height of our Engine to the top of boiler shell is fifty-six inches, which is the lowest mounted Traction Engine in the market.

Balanced Cranks

are placed on all our Engines, both Traction and Plain, which gives a uniform steadiness to all parts when running. An increase of power is thereby obtained over an engine made with the old style crank, besides a great saving of coal or wood.

All Shafts are of steel. The main driving Axle is also of steel, $3\frac{1}{2}$ inches in diameter.

In the construction of our Engines we have always endeavored to keep this one object in view; that is, to use Steel, Wrought and Malleable Iron wherever possible, thus securing the maximum of strength with the minimum of weight.

We invite the closest scrutiny to the general make up, and mechanical construction of all parts of our Engines, as regards durability, effectiveness, and general worth, as good, reliable, first-class engines in every respect.

Avery's Patent Reverse Gear

is used on all our Tractions. With one lever the engineer has full control of his engine,—can reverse it at will, and can cut off his steam from zero to full stroke,—running in either direction, or use it as a throttle valve or a

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brake to stop the engine in case of necessity or accident, and is very simple. Only one eccentric is used, and every part of it that is subject to wear can be taken up in the fields by unskilled hands.

This Patent Reverse Gear is also suitable for Locomotives and Hoisting Engines.



FIG. 1.

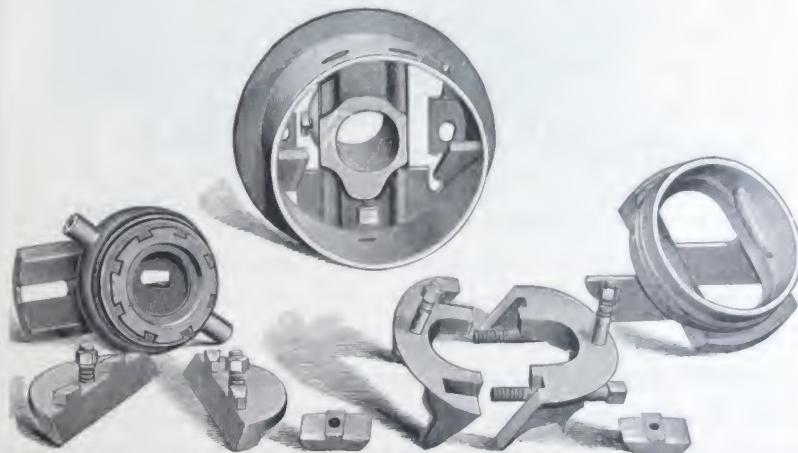


FIG. 2.

Fig. 1 shows the Gear Complete, and Fig. 2 gives a view of the different parts, showing the simplicity of its construction.



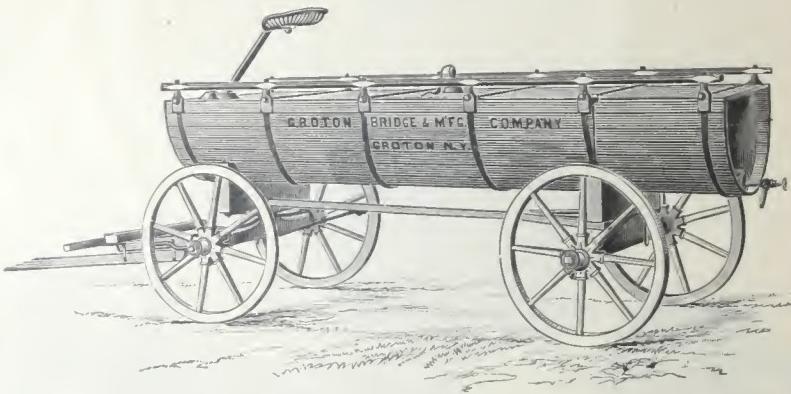
The Front Wheels

of our engines have a raised band in the center of the tire, which prevents their wobbling and jerking, and also prevents slipping sideways.

Metallic Springs

are attached to each steering chain, so that in case one of the front wheels strikes a stone or other obstruction, the strain upon the chain, gears, and steering reel is instantly relieved, and, after passing the obstruction, the wheels immediately resume their proper position, thereby keeping the engine in the direction it should travel.

The Water Tank.



The Water Tank is made half round, with oval side which admits of its being mounted low down, and, at the same time, leaves ample room for the forward wheels when turning in small space, and, with the side rails on top, leaves just as much room for carrying purposes as there is on a square tank. The outlet is at the back end and at the lowest point, making it easily drained even when standing on sidling places. The tank staves are made of narrow strips of pine $1\frac{1}{2}$ inch thick, and are held in place by twelve heavy, wrought-

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The Groton Bridge and Mfg. Co., Groton, N. Y.

iron bands, threaded at each end, which can be tightened when necessary, with an ordinary wrench. All tanks are made with three compartments which prevent the water from surging when passing over rough roads. The compartments are connected with each other so that one outlet drains all. The adjustable coal box is furnished when ordered, and is connected with the water tank. It is made mostly of iron and half round, similar to the tank, and requires but a moment's work to attach or detach to or from the tank when necessary. The trucks are well made, durable and in every way equal to those of our Separator. The wheels are 40 x 44 inches diameter, $2\frac{1}{2}$ inch tire. The tank is handsomely finished and decorated, in short is the best and most complete water-wagon made.

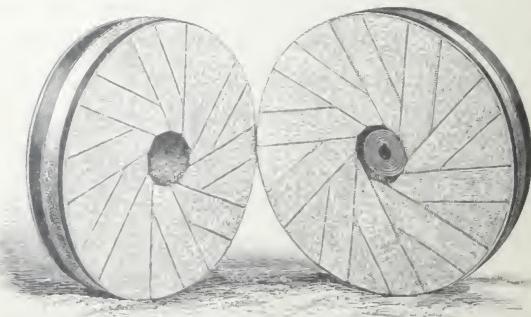
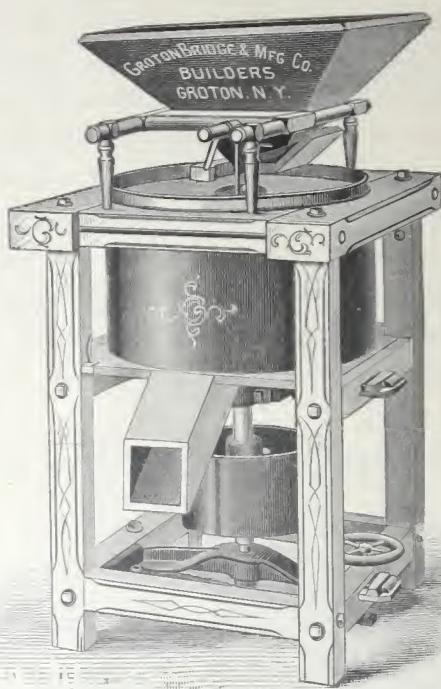
Our Genuine French Buhr Stone Corn and Feed Mill.

For several years, we have manufactured genuine French Buhr stone mills, as illustrated above. We started in this line upon a small basis, thinking such an article would be profitable to many of our customers, whose engines were idle during the winter and spring months. To our surprise, immediately the demand for the mills became very great, and, instead of being a secondary business, it has become a specialty with us. We now have one of the best mill trades in the United States. The grinding substance used is genuine French Buhr stone, which we purchase of one of the oldest importing houses in the country. They are not the cheap iron or steel mills with which the country is flooded and which cost more to keep in repair and supplied with grinding plates than they are worth, but are made in such manner and of such material that they will last a life-time, requiring only occasional re-dressing of the stones. Their capacity is 100 to 400 bushels per day, according to size. They not only grind feed in the best manner, but make the nicest round corn meal, and, in fact, are used by many for grinding wheat into flour.

Our prices are below the lowest, and we guarantee the mills can not be excelled. We call your careful attention to the following description of our mills.



The Groton Bridge and Mfg. Co., Groton, N. Y.



FEED MILL.



We aim to construct our Mills of as few parts as possible, so that they are strong, durable, and so simple that any boy of ordinary intelligence can operate them. The frame is of the very best quality, well seasoned material; the mill is nicely made, great care being taken in its construction, and neatly painted and varnished. The upper part of the frame to which the top stone is fastened is tenoned and pinned, besides having two strong rods or bolts running through it, thus making it unquestionably strong and rigid. This, of course, is necessary in order that the upper stone may be held rigid and secure.

After being carefully set and securely fastened to the frame, a coating of plaster paris is put upon the upper stone, thus giving it a nice and smooth finish.

The spindle is steel, has a large bearing and placed as near the runner as possible. The step is chilled iron and nicely fitted to the bridge tree in which it is allowed a little liberty. It is supported by the lighter bar, and by this, in connection with the hand screw wheel, is raised and lowered as desired.

The feed is arranged so that it can be regulated to suit the operator. The hopper is large and roomy, so that an elevator is not needed and the mill does not require such close attention as if the hopper were small. The driving pulley has a wide face and its diameter is as large as the required motion will allow. A hub with projecting ribs is firmly fastened to the runner stone, and hub. The stone is then chuck'd in the lathe and the hub bored true with the running face. The hub is then slotted and securely keyed to the spindle. Thus the stone is absolutely and unquestionably held fast to the spindle and is always true.

The Patent Spoke Planing Machine.

The attention of the public is called to this valuable invention for manufacturing Spokes. This machine has been fully perfected, and is acknowledged to be the only one which can fully and accurately do the work for which it is designed.

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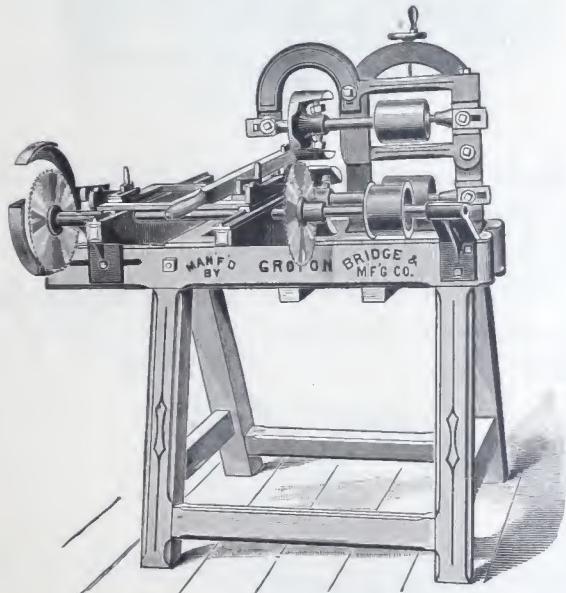
PATENT SPOKE PLANING MACHINE.

The Groton Bridge and Mfg. Co., Groton, N. Y.

Numerous other machines have been invented for this purpose, upon the principle of the turning lathe, but, from the imperfect nature of the machinery in adapting itself to the work of dressing spokes, have proved entirely inadequate, and left a large amount of hand labor to be performed. This difficulty is entirely obviated by our Patent Spoke Planing Machine, which finishes its work as perfectly as does a board planer *its* work. No Pattern is required, as, by a simple adjustment of its parts, spokes can be planed any size from $\frac{7}{8}$ of an inch, to $2\frac{3}{4}$ inches.

This machine is capable of dressing from 1200 to 1500 spokes per day. It occupies but little space, weighs 800 pounds, and is made wholly of iron and steel.

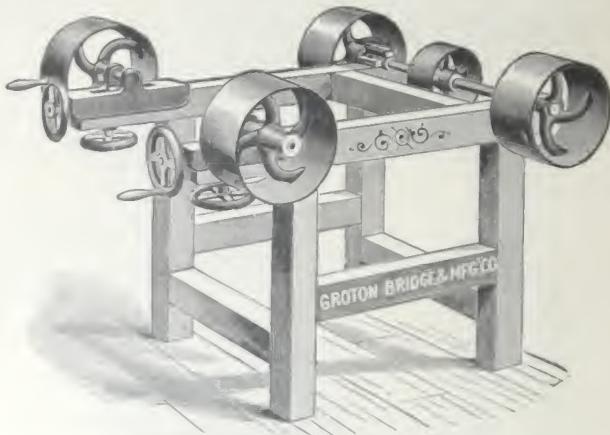
The Spoke Tenon Saw



is used in connection with the Spoke Machine. This machine cuts off both

ends of the spoke to a desired length, and makes the Tenon at the same time. This machine is very simple and easily adjusted, and is very rapid in its operation. Weight 350 pounds.

The Spoke Finishing Machine



or Belting Machine, is another important feature of this Spoke Machinery, and consists of two belts which are made of heavy sand-paper. Two men can work on this machine at the same time.

The three machines above described, comprise the best equipment of spoke machinery in the market. They take a square piece of timber and deliver a perfect spoke.

N.Y.

Tenon at the same
and is very rapid

le



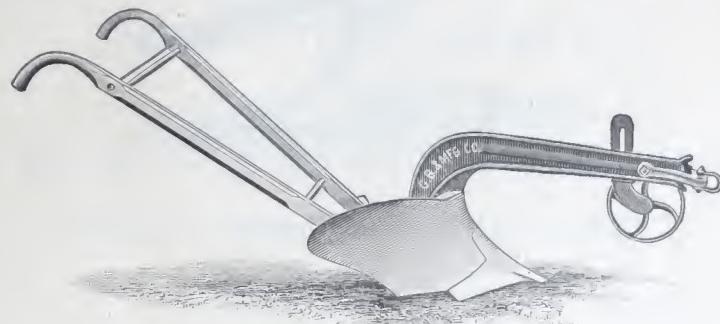
Spoke Machinery,
paper. Two men

equipment of spoke
timber and deliver

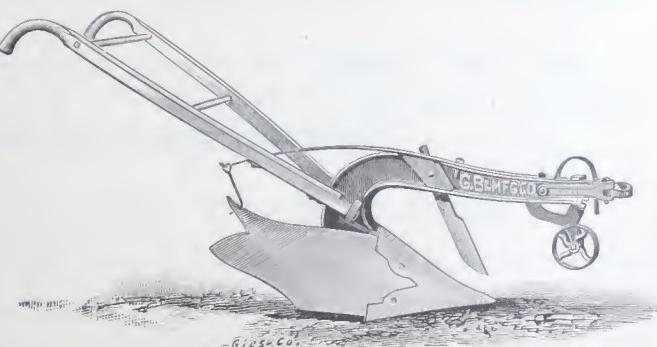
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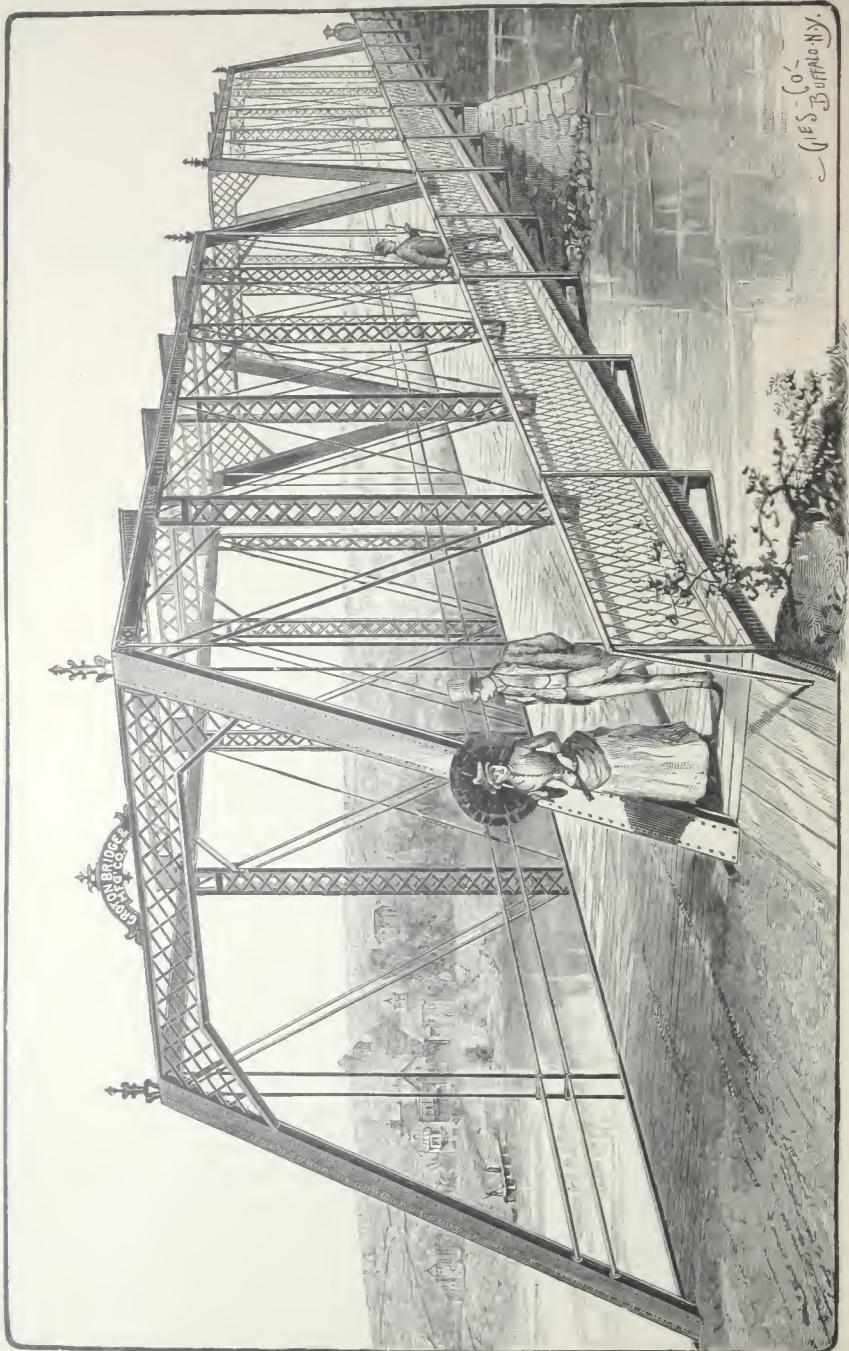


The past ten years has entirely changed the construction of Iron Bridges, and, in most cases, the substructures for them. The maxim that "whatever is worth doing at all, is worth doing well," should, in all cases, be applied to public work. The first important point in the design of any structure is the foundation, and for bridge work should never be slighted in the least particular.

During the past ten years, the Groton Iron Bridge Company (now the Groton Bridge and Manufacturing Company) have done a very large business in the construction of

Stone and Iron Foundations,

and we advise all who have the means, to build nothing but first-class stone work upon the solid rock, or a foundation of piles, driven about three feet apart each way, and in three rows. The piles should be cut off and timbered with two courses of timber, the top course of which should always be below the



BRIDGE AT MANSFIELD, PA.

The Groton Bridge and Mfg. Co., Groton, N. Y.

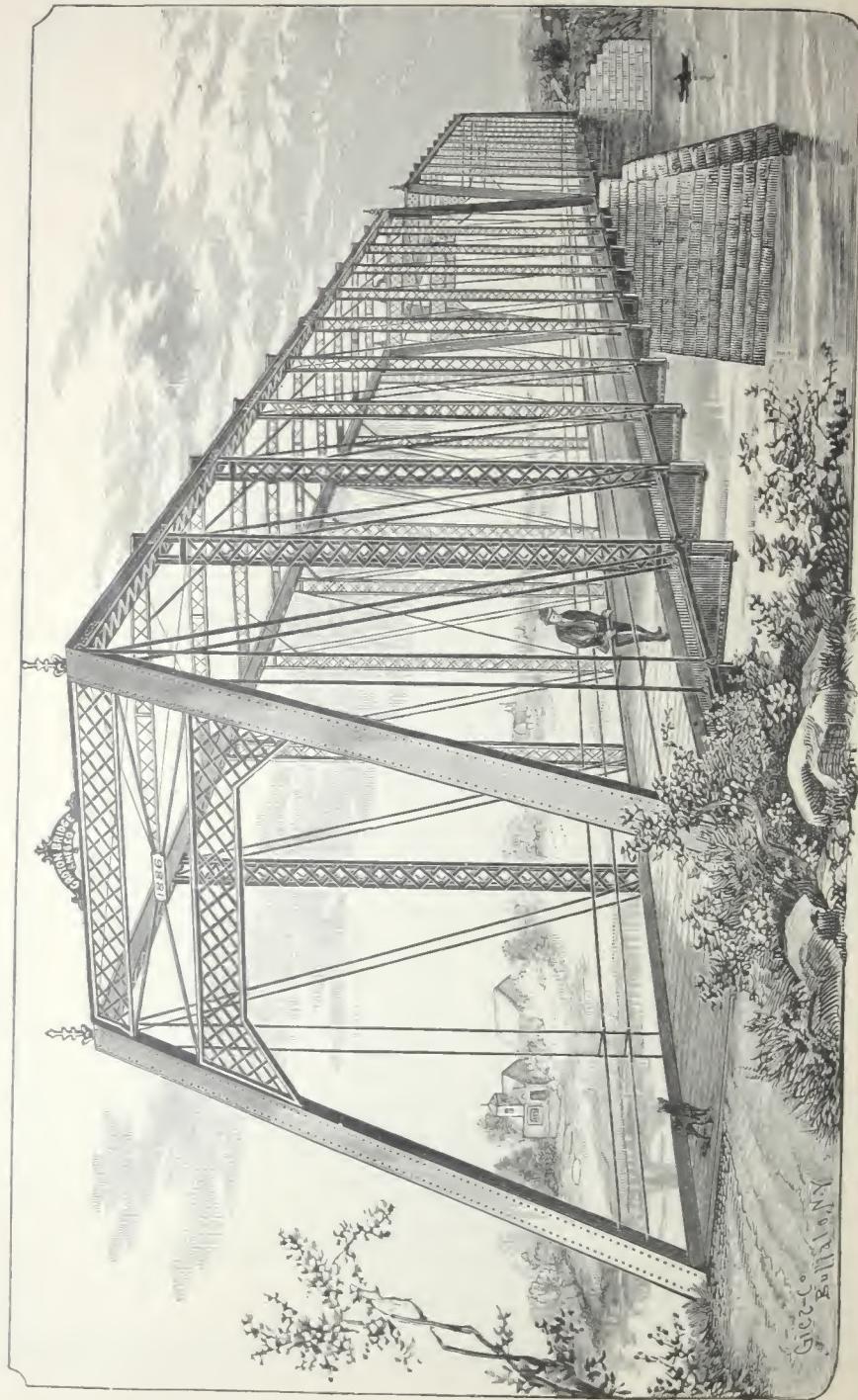
water level. The stone should be large, with beds dressed to joint and laid in courses. Small stone or cobbles should never be used in the face of any bridge masonry.

We have a large force of practical workmen, and all the tools, such as Pile Drivers, Steam Hoisting Engines, Hydraulic Pumps, Iron Cushion Derricks, etc., etc., to carry on several contracts for large river work at the same time, and in many cases we are able to do better work, and at half the price that the work can be done by local parties.

If stone work of the class mentioned above cannot be had, then we advise the use of iron ; and it is our belief, that there is nothing in use as good as our Patent Iron Piling, which is now almost universally used in the State of New York. We have at least one thousand span built upon Iron Piles, and they have been used in the most difficult places. We have two bridges over the Seneca River, at Weedsport, N. Y., the piles for one of which are over seventy feet long. At this point the water is twenty feet deep, and the river bed is soft mud,—some of the piles sinking sixty feet with their own weight. This bridge has been in use four years, and the cost of the entire structure was less than it would have cost to build one pier of stone. The general impression of the novice is, that iron used as a pile will sink—will support a less load than wood. This is not the fact, as the earth very soon adheres solidly to the iron. It is our belief that an Iron Pile will support double the weight of wood.

The Groton Bridge.

Any corporation having a bridge of our design, can rest assured that they have a bridge entirely safe to carry the load it was designed for, as we have never slighted our work in the least, and we have paid on an average one fourth of a cent per pound above the market price, and over the cost of iron generally used in bridge work, to secure a brand of iron that is unquestionably the best in the market.



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The Groton Bridge and Mfg. Co., Groton, N. Y.

The preference given our Company by the United States Government, for a bridge over the East Branch of the Potomac on Pennsylvania Avenue, Washington, D. C., upon our specifications, is a very safe guaranty that our designing is as good as any, if not the very best.

Among our Western work is the Bridge over Grand River at Grand Junction, Colorado, built for the State of Colorado, which is the largest Iron Bridge in the State, the masonry of which is cut stone laid upon the bed rock—the entire work being done by our special workmen.

Our location and facilities for manufacturing bridges, make it possible for us to build superior work at prices that defy competition.

Plans and estimates and specifications cheerfully furnished to parties desirous of purchasing.

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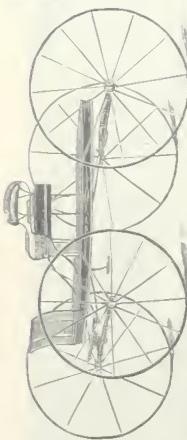


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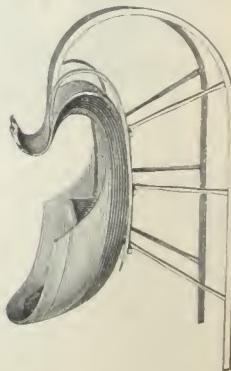
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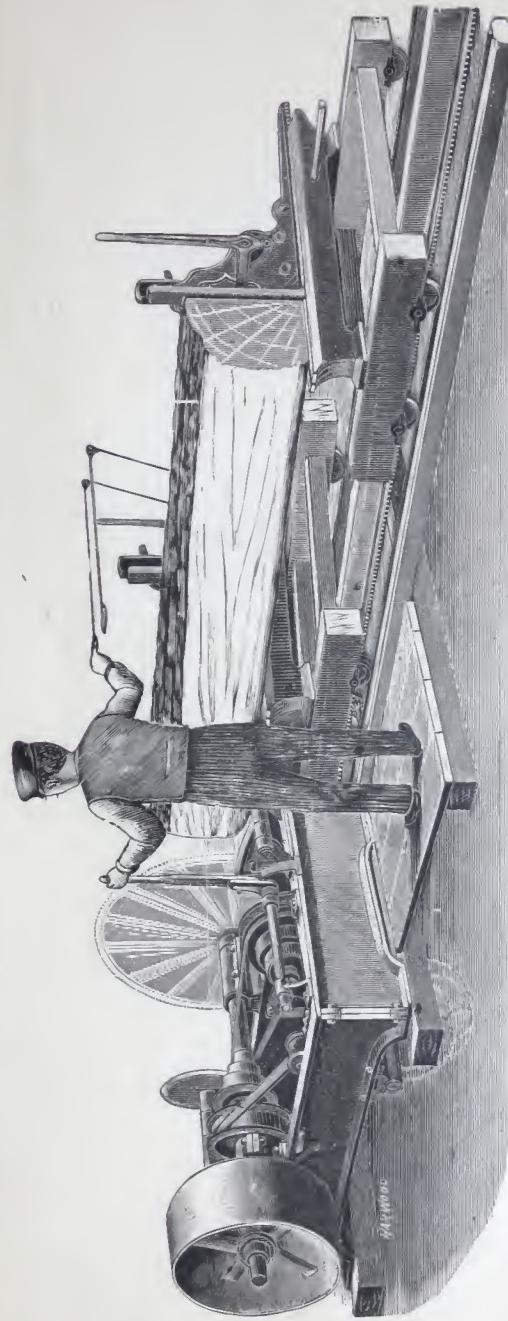


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